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10/673,118

09/26/2003

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EXAMINER

WAI, ERIC CHARLES

ART UNIT

PAPER NUMBER

2195

MAIL DATE

DELIVERY MODE

10/26/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/673,118

Applicant(s)

FLOCKHART ET AL.

Examiner

Eric C. Wai

Art Unit

2195

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 August 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-3, 6-14, 16-26 and 28-34 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-3, 6-14, 16-26 and 28-34 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 10 August 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☐ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/14/2007.
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- ☐ Notice of Informal Patent Application
- ☐ Other: _____.

DETAILED ACTION

1. Claims 1-3, 6-14, 16-26, and 28-34 are presented for examination.

Claim Rejections - 35 USC § 101

2. 35 U.S.C. 101 reads as follows:

Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

3. Claims 16-19, and 20-25 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

4. Claims 16 and 20 recite an apparatus; however, it appears that the system would reasonably be interpreted by one of ordinary skill in the art as software per se, failing to be tangibly embodied or include any recited hardware as part of the system.

Furthermore, software is an equivalent means for performing the function of claim 16.

The components of claim 20 can all be construed as software.

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section

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351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

6. Claims 1-3, 6-7, 13-14, 16-18, 20-26, and 28 rejected under 35 U.S.C. 102(e) as being anticipated by Le Grand (US Pat No. 6,487,290).

7. Regarding claim 1, Le Grand teaches a method for balancing resource loads, comprising:

receiving a work request (col 1 line 59, "incoming call");

determining for each of a plurality of service locations a probability of servicing said work request within a target time; wherein said determined probability includes determining a relative probability for each service location included in the plurality of service locations by calculating a number of opportunities to service said work request within said target time by each service location included in the plurality of service locations (col 2 lines 34-36, "evaluating the current availability", col 4 lines 17-29, wherein a target time must be calculated in order to determine a probability of delay, col 5 lines 17-23, wherein the shortest queue length is indicative of a number of opportunities);

selecting at least a first service location having at least one of a greatest determined probability of servicing said work request within said target time and a sufficient determined probability of servicing said work request within said target time; and assigning said work request to said selected service location (col 2 lines 41-50).

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8. Regarding claim 2, Le Grand teaches that said step of selecting at least a first service location comprises selecting at least a first service location having a sufficient determined probability of servicing said work request within said target time (col 4 lines 22-29).

9. Regarding claim 3, Le Grand teaches that said step of selecting at least a first service location comprises selecting at least a first service location having a greatest determined probability of servicing said work request within said target time (col 4 lines 22-29).

10. Regarding claim 6, Le Grand teaches that selecting at least a first service location comprises selecting at least a first service location having at least a selected minimum number of opportunities to service said work request within said target time (col 4 lines 56-63, wherein the agents need to be qualified).

11. Regarding claim 7, Le Grand teaches the step of selecting at least a first service location comprises selecting at least a first service location having a greatest number of opportunities to service said work request within said target time (col 5 lines 17-23, wherein the agent with the shortest queue is indicative of the greatest number of opportunities).

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12. Regarding claim 13, Le Grand teaches that each of said service locations is associated with a queue capable of containing a plurality of work requests (col 4 lines 17-25).

13. Regarding claim 14, Le Grand teaches that said service location comprise at least one split (col 4 line 17, "group of agents").

14. Regarding claim 15, Le Grand teaches selecting a target time for completing a work request (col 4 lines 17-29, wherein a target time must be calculated in order to determine a probability of delay).

15. Regarding claim 16, it is the apparatus claim of claim 1 above. Therefore, it is rejected for the same reasons as claim 1 above.

16. Regarding claim 17, Le Grand teaches that said service location is associated with a queue and comprises at least one associated resource (col 2 lines 46-49 and col 4 lines 17-18).

17. Regarding claim 18, Le Grand teaches that said service location comprises a split (col 4 line 17, "group of agents").

18. Regarding claim 20, Le Grand teaches a work allocation apparatus, comprising:

a plurality of service locations (col 2 lines 1-5);

a plurality of service resources, wherein at least a one of said service resources is associated with each of said service locations (col 2 lines 46-49).

a communication network interface, operable to receive work requests (col 2 lines 29-32, wherein it is inherent that a network interface exists); and

a controller, wherein said controller operates to calculate a relative probability that a work request will be serviced within a target time for each service location included in the plurality of service locations (col 4 lines 17-29, wherein a target time must be calculated in order to determine a probability of delay), wherein said relative probability is determined for a service location by calculating a number of opportunities to service said work request within a predetermined target time (col 5 lines 17-23, wherein the shortest queue length is indicative of a number of opportunities), wherein a work request received at said communication network interface is assigned to a service location having at least one of a highest probability of servicing said work request within a predetermined target time and a sufficient probability of servicing said work request within a predetermined target time (col 2 lines 41-49).

19. Regarding claim 21, Le Grand teaches that said service resources comprise service agents (col 1 lines 66-67).

20. Regarding claim 22, Le Grand teaches that said service resources are organized into splits (col 4 line 17, "group of agents").

21. Regarding claim 23, Le Grand teaches that said work request is associated with a request for assistance (col 1 lines 19-33, wherein the work is associated with a call).

22. Regarding claim 24, Le Grand teaches that said communication network interface is interconnected to at least one of an Internet protocol network and a public switched telephone network (col 1 lines 19-33, wherein calls are distributed).

23. Regarding claim 25, Le Grand teaches that said service locations each comprise a server (abstract, wherein it is inherent that calls be handled by some sort of server).

24. Regarding claims 26, and 28, they are the apparatus claims of claim 1.
Therefore, they are rejected for the same reasons as claim 1.

Claim Rejections - 35 USC § 103

25. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

26. Claims 8-12, 19, and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over Le Grand in view of Costantini et al. (US Pat No. 5,506,898).

27. Costantini was disclosed on IDS dated 12/14/2006.

28. Regarding claim 8, Le Grand does not teach that said number of opportunities (#OPPS) is calculated as $\text{\#OPPS} = ((\text{Target time} - \text{EWT}) / \text{WAT}) + 1$, where EWT is the estimated wait time for a work request assigned to said service location, and where WAT is the weighted advance time for a work request assigned to said service location.

29. Costantini teaches the use of an average rate of advance in determining the estimated wait time in a queue (Fig 5, 502 and 504).

30. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the use a measure such as a weighted advance time or average rate of advance in determining the number of opportunities or estimated wait time. One would be motivated by the desire to produce a more accurate estimate of how long an item would or will have to wait in a particular queue before being serviced as evidenced by Costantini (col 2 lines 4-10).

31. Regarding claims 9-10, Le Grand does not teach calculating an advance time metric or that the advance time metric comprises an expected wait time, wherein said step of selecting comprises selecting a location having a lowest expected wait time.

32. Costantini teaches the use of an average rate of advance in determining the estimated wait time in a queue (Fig 5, 502 and 504).

33. It would have been obvious to one of ordinary skill in the art at the time of the invention to include the use a measure such as a weighted advance time or average

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rate of advance in determining the estimated wait time. One would be motivated by the desire to produce a more accurate estimate of how long an item would or will have to wait in a particular queue before being serviced as evidenced by Costantini (col 2 lines 4-10).

34. Regarding claim 11, Costantini teaches that said advance time metric comprises a weighted advance time trend, wherein said step of selecting comprises selecting a location having a lowest weighted advance time trend (Fig 3, 302).

35. Regarding claim 12, Costantini teaches that said weighted advance time trend (WAT_Trend) is calculated as $WAT_Trend_n = (x * WAT_Trend_{sub.n-1}) + ((1-x) * WAT_Change)$, where x is a constant, and where the WAT_Change is calculated as $WAT_Change = (WAT_{sub.n} - WAT_{sub.n-1}) / WAT_{sub.n-1}$ (Fig 3, 302).

36. Regarding claim 19, it is the apparatus claim of claim 9 above. Therefore, it is rejected for the same reasons as claim 9 above.

37. Regarding claims 29-34, they are the apparatus claims of claims 8-9, 11-12, and 15. Therefore, they are rejected for the same reasons as claims 8-9, 11-12, and 15.

Allowable Subject Matter

38. Independent claims 1, 16, 20, and 26 would be allowable if the subject matter of claims 8 and 12 were combined into said independent claims.

Response to Arguments

39. Applicant's arguments filed 08/10/2007 have been fully considered but they are not persuasive.

40. Applicant argues on page 12:

a. Le Grand does not teach, suggest or describe calculating a relative probability for each of a plurality of service locations as recited by the pending claims.

b. Moreover, Le Grand does not teach, suggest or describe determining a probability of servicing a work request within a target time. That is, Le Grand discusses determining a queue wait for a single response resource, but has no teaching, suggestion or disclosure of a target time.

c. The Le Grand reference does not teach calculating a number of opportunities to service work within a target time.

41. Regarding a). Examiner asserts that the figure-of-merit values (col 4 lines 17-29), which are representative of the probability of delay, can be interpreted as relative probability values.

42. Regarding b). Examiner asserts that determining a probability of delay is equivalent to determining a probability of servicing a work request within a target time. The claims do not require actually determining a target time. Simply determining a probability of delay is sufficient to read on the claimed subject matter.

43. Regarding c). Examiner asserts that the shortest queue length is indicative of a number of opportunities (col 5 lines 17-23).

Conclusion

44. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

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45. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Eric C. Wai whose telephone number is 571-270-1012.

The examiner can normally be reached on Mon-Thurs, 8am-5pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Meng - Ai An can be reached on 571-272-3756. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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